## Appendix 1: US Telecommunications Events and Legislations

Year & Event	Rationale
1885	Provide protection to company officers
Bell incorporates as	
AT&T (American	
Telephone &	
Telegraph	
Company)	
1934	The Communication Act 1934 established FCC (Federal
Communication	Communication Commission) to oversee interstate telecommunication
Act,1934	services and regulate telecommunication and broadcast industries.
1949	To provide low-cost loans to Independent who willing to establish
REA (Rural	telephone services in rural area in America where state legislation
Electrification Act)	guaranteed a positive rate of return to carrier
amended	
1968	Deregulation of telecommunication industry began with the customer's
FCC Carterphone	premises. The Carterphone decision 1968 had the most impact on
decision	deregulation of station equipment by the FCC. This decision enabled
	customers to purchase telephones from Independent retailer, FCC
	forcing AT&T to allow connection of a carterphone to telephone lines at
	residence. In other words, AT&T must permit the use of CPE (customer
	provided equipment) that are not owned by the LEC (local exchange
	carrier).
1969	Long distance telephone service was the second area to be deregulated in
MCI ruling by FCC	telecommunication. Deregulation began with the MCI ruling of 1969 by
Mer runing by rec	the FCC. The lawsuit forced AT&T to allow customers of MCI
	(microwave communication inc.) to use local telephone lines to access to
	MCI's private line network. Deregulation of long distance service meant
	a loss of toll sharing revenue to the LECs. However, local phone rates
	were raised to offset the loss of this revenue.
1971	
Specialized common	FCC widen this decision and allow any common carrier to provide
carrier	private-line service, called Specialized Common Carrier Ruling, 1971
Carrier	whereby this services can only be used by the private organization to
1076	help their private network.
1975	MCI began to offer long distance service to general public. However,
MCI decision	FCC ordered MCI to restrict its services to private line business. Finally,
1004	MCI sued and appealed. The FCC ruling was reversed.
1984	The 1984 agreement was called Modified Final Judgment (MFJ). This
MFJ takes effect	judgment modified and replaced 1956 Final Judgment. The major
	provisions of 1984 MFJ were:
	AT&T was forced to deregulate long distance services and divest
	itself of the 23 Bell Operation Companies (BOCs)/ Baby Bells.
	These were the local Bell Telephone companies. Before 1984 MFJ,
	there were 23 BOCs that were subsidiaries of AT&T. Thus, AT&T
	was left with the long distance facilities and BOCs were left with
	local service facilities. Now BOCs are separate companies and
	AT&T can no longer force them to buy solely from Western
	Electric. They can choose to buy from whichever manufacturers
	who providing equipment at a lower price.

	<ul> <li>Calls that originated and terminated within a small geographic area called LATA (intraLATA calls) must be carried by LEC (Local Exchange Carrier) and call between LATAs (interLATA calls) must be carried by IEC (Inter-exchange Carrier). IECs are common carriers that provide long distance telephone service. The major IECs are AT&amp;T, MCI, Sprint, LDI etc.</li> </ul>
	• In 1984 the MFJ also ordered regional BOCs to provide equal access to toll for all IECs by 1987. BOCs had to replace electromechanical toll offices with computer controlled switching systems and they have to provide POP locations <sup>43</sup> . When the customer makes an inter-LATA call, the BOC will connects the caller to their preferred IEC as their long distance service provider. This is called PIC (Preferred inter-exchange carrier) and LEC will program its central office to assign the preferred IEC to that customer's telephone number.
1987 Equal access (1984 MFJ)	RBOCs must provide equal access.
1996	Replaced 1984 MFJ and open both areas to competition. It allows either
Telecommunications	type of call to be carried by either LEC or an IEC.
Reform Act 1996	The 1996 Telecommunication Reform Act overrides Computer Inquiry II <sup>44</sup> and allows LECs to reenter the CPE market. The LECs have merged with these separate subsidiaries company. Therefore, CPE can also be sold by LECs.

<sup>&</sup>lt;sup>43</sup> POP is called Point of Presence which is the local exchange carrier and inter-exchange carrier meet each

other.

The Computer Inquiry II was mandated that local exchange carrier could not provided station equipment.

In other words, Computer Inquiry II prevented LECs from selling CPE (Customer provided equipment).

### Appendix 2: Telecommunication Policy in United Kingdom - Chronology of Events

- 1981 British Telecommunications Act 1981 split BT from Post Office and begins liberalization.
- 1982 Mercury is licensed as a national network operator in competition with BT.
- 1983 BT and Mercury duopoly policy announced.
- Telecommunications Act establishes a new regulatory framework, OFTEL, and RPI-3 price control on inland calls.
  - BT is privatized with 50.2 per cent of its shares sold.
- 1985 OFTEL rules on the terms of interconnection between BT's and Mercury's network.
- 1986 BT continues to rebalance call charges.
- 1987 BT's quality of services comes under criticism.
- 1988 BT accepts contractual liability for poor service and standard compensation terms are set.
  - Review of price control and raises X to 4.5 and extends the scope of regulation.
- 1991 White Paper ends the duopoly policy.
  - Price controls is extended to international calls with X being correspondingly increased to 6.25.
  - Government sells second tranche of BT's shares
- 1992 Review of BT's price controls raises X from 6.25 to 7.5

Appendix 3: Restructuring of Telecommunications operators and the time frame (Selected countries)

<b>∞</b>	United Kingdom	New Zealand	Mexico	Malaysia	Chile	Australia
84	<u>\$</u>	Č				
8 5	LBT Free	Competition			nationalization	
8 6	Corporatization rom Post Office		Manopal	+	***************************************	
8 7	tion Tice & Go	Toppo	<b>4</b> .:		1,415.00	lonepoly
& &	ве Тъющ	Corporatization Split TCNZ from Post Office		Corporativation		
8 9	Corporatization Split BT From Post Office & Gone Through Duopoly	plit desgrad		ation	Pikatiyation	
90	<b>4</b>		The second secon			
9 1		Promise & allow	la Piza		Open M	
92	Compd		ls Phase of Reform: Provated Telmer		arked For	
93	Competition with	Privatzation: Ist Share Sale & allow Foreign havestment		PINA	en Market Foreign Partic	ב
9 4				zalione Tra	Oligate on	uopaly
9 5	nterventionist Regulation	A		dion 19 Nuic Sale		
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			2nd phasen up ma	in in the second secon	Fully Co	
97			2nd phase of reform: open up market compet		mpetition	2
9 8	11124		m; ociiion	On the		Competition
99						
			_			

Source: Cave (1997), Galal & Nauriyal (1995), Hudson (1997), Kagani & Tsuji (1999), Smith & Staple (1994) Wellenius & Staple (1996) and WDR 98/99 (1999).

Appendix 4: The functions of the Commission as in Communications and

Multimedia Commission Act (CMCA)

to advice the Minister on all matters concerning national policy objectives for

communications and multimedia activities.

To implement and enforce the provision of communications and multimedia laws;

To regulate all matters relating to communications and multimedia activities not

provided for the communications and multimedia laws; to consider and recommend

reforms to the communications and multimedia laws

To supervise and monitor the development of the communications and multimedia

industry;

To encourage and promote self-regulation in the communications and multimedia

industry;

To promote and maintain the integrity of all persons licensed or otherwise authorized

under the communications and multimedia industry;

To render assistance in any form to, and promote co-operation and co-ordination

amongst, persons engaged in communications and multimedia activities; and

To carry out any function under any written law as may be prescribed by the Minister

by notification published in the Gazette.

Source: Communications and Multimedia Commission Act 1998.

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# Appendix 5: Main National Objectives in the Communications and Multimedia Act (CMA)1998

- to establish Malaysia as a global hub for communications and multimedia industry
- to build a new civil society
- to nurture local content and culture
- to give priority for the long-term benefits of the end user
- to promote consumer confidence in the industry
- to ensure access and equitable services
- to create a robust applications environment for end users
- to allocate resources efficiently
- to develop sector capabilities and to provide secure and safe networking

Appendix 6: Summary of institutional characteristics of telecommunications sector (selected countries)

Country	Public Telecommuni-	Legal regulatory framework	Competition policy	Ownership	Remarks
	cation				
	Operator (PTO) &				
	regulatory				
	agency				
	(commission)				
Australia	Telstra	Telecommunication	Duopoly in	Duopoly,	Tariff
		Act 1991	basic services	Telecom /	condition:
or .	AUSTEL	-replaces	until 1997 in	OTC	CPI-X% for
	(Australia	Telecommunication	local, long	(Telstra) and	the main
	Telecommunica	Act 1989	distances and	a privatized	services
	-tion Authority)	200 M 22 O 19 30020	international.	AUSSAT	(Connection,
	- is an	Australia & Oversea		merged in	line rentals,
	independent	Telecommunications	Restriction on	1991.	local, trunk.
	authority	Corporation Act	third party		International
	*	1991	resale.	3 public	calls, leased
	- it was		Serting 22 to the	mobile	line and
	established by	Telecommunications	Competition in	telephone	mobile
	Telecommunica	(Universal service	public access	licenses were	services)
	tions Act 1989.	levy) Act 1991	cordless	issues by	
			telephone	1992 to	Review is
	Australian	Telecommunications	service.	Telstra,	conducted at
	Communication	(transitional		Optus, Arena	the end of
	s Authority	Provisions &	A community	GSM Pty Ltd.	each price cap
	(ACA)	Consequential	service	(Includes	period.
	-this institution	Amendments) Act	obligation	UK-based	Information
	is a competitive	1991	(CSO) on	Vadafone and AAP	provided by
	authority.	m t	Telstra to	information	regulated firm
		Telecommunication	ensure universal	Service of	regulated tirin
		(Carrier licence	service	Australia)	
	Australian Competition	Fees) Act 1991			
	and Consumer Commission	International code of practice		No legal foreign	
	(ACCC)	National planning		ownership restriction	
		National planning code.		exists.	
		wde.		CALOUS.	
		Telecommunications			
	OTTO .	Act 1997	CTC and	Delos to	Sale of state-
Chile	CTC	The Electric Utilities	CTC and ENTEL have	Prior to 1960s,	owned
	- no	Law were enforced in	lots of legal	controlled by	enterprises,
	independent	Telecommunications	conflict. This	multinational	CTC and
	regulator.	sector: - any supplier	led to April	company,	ENTEL
	SUBTEL	interested in	1993 antitrust	International	through

<sup>&</sup>lt;sup>45</sup> SUBTEL, a part of Ministry of Transportation and Telecommunications which is responsible for telecommunications regulations, granting licenses, developing technical standard and overseeing the network operation.

Anti trust Commissions Commissions Commissions Commissions Commissions Commissions Commissions Commission Rexico  Anti trust Commissions Commission Rexico  Anti trust Commission Commission Rexico  Anti trust Commission Commission Rexico  Anti trust Commission Commission Federal de Telecommunication  Telmex  Law of General Means of Commission Federal de Telecommunication  Telecand Dayle for government bloch CT & ENTEL Dermitted each others market and also open to other services and providers. Supreme Court Supreme Court  Begnar to divest itisel of its holding either itake over and also open to others market and also open to other sarbitration Cortected by also required and private seles to Chilean providers.  Bepariated intervention in 1984-90 Informational accelerated private operational standers accelerated by rovision for an erequire real agreement.  Supreme Court  Espana to divest itisel of its holding either itake over and also open to other sarbitration CTC is the dominant acriter in local service sorbited the did chies open to adjusted toward decreasing cross- su		(Ministry),	establishing	tribunal where	Telephone &	Santiago
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each party and the third by mutual agreement.  - disputes over entry are resolved by the anti trust commission ns, with appeal to the procedures for subject to binding arbitration.  - Disputes over interconnec tion are subject to binding arbitration.  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Disputes over interconnec tion are subject to binding arbitration.  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Disputes over interconnec tion are subject to binding arbitration.  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Disputes over interconnec tion are subject to binding arbitration.  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Disputes over interconnec tion are subject to binding arbitration.  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Telmex  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Telmex  - Disputes over interconnec tion are subject to binding arbitration.  - Telmex  - Telmex  - Telmex  - Telmex  - Telmex interconnec instrument.  - Telmex: - monopoly ariffs in local service intercon and local service intercal access (subscriber choose the long distance carrier in domestic and international long distance service provider.  - Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  - Telmex  - Telmex was private sector area.  - Telmex was private sector area.  - Telmex was private sector area.  - Telmex was private sector provider.  - Telmex was private sector area.  - Telmex was private in local service area international long distance service area international long distance service area international long distance arrier specific access (ade).  - Telmex was private sector area.  - Telmex was private sector area.  - Telmex was private in local service area international long distance arrier specifi		M118 M2 50.			CTC is the	
and the third by mutual agreement.  - disputes over entry are resolved by the anti trust commission s, with appeal to the Supreme Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  - strengthen SUBTEL. **5's regulatory agreement.  - strengthen SUBTEL. **5's regulatory powers and penalties for contravene the law. Tariffs were gradually adjusted toward decreasing cross-subsidies.  - disputes over entry are resolved by the anti trust appeal to the Supreme Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  - strengthen SUBTEL. **5's regulatory equiators (subscriber choose the long distance carrier for each call by dialing a carrier specific access code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  - Telecommunication 1938 is the basic legal instrument.  - Telmex: - monopoly actiffs and been adjusted to been adjusted to been adjusted to been adjusted to arrier in local service market.  - manket.  ENTEL is the main domestic and dinternational long distance service provider.  Setting tariff saceos on tate on return of efficient for each call by dialing a carrier specific access code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  - Telmex Means of Communication 1938 is the basic legal instrument.  Telmex: - monopoly basic service area.  Telmex: - Telmex was privatized in 1990 with the controlling consortium was led by	ļ		Ottom to			Adopted
third by mutual agreement.  Telecommunication appeal to binding arbitration.  Mexico  Telecommunication  Tel			- strengthen			
mutual agreement.    mutual agreement.   powers and penalties for contravene the over entry are resolved by the anti trust commission ns, with appeal to the Court.   Polisputes over interconnec tion are subject to binding arbitration.   Mexico   Telecommunication   Federal de Federal de Telecommunication   Federal de Telecommunication   Federal de Telecommunication   Federal de Telecommunication   Telec		E200.92 (E3) 2	SUBTEL 451s	Provision for an	2.44	
agreement.  - disputes over entry are resolved by the anti trust commission ns, with appeal to the Entre Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  - disputes ocotravene the law. Tariffs were gradually adjusted toward decreasing cross-subsidies. commission ns, with appeal to the Entre Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Telecommunication 1938 is the basic legal instrument.  Telecommunication 1938 is the basic legal instrument.  Telecommunication penalties for cach call by distance carrier for each call by distance carrier specific access code).  Resale telephone line by subscribers was legal resulting more efficient allong distance carrier for each call by distance carrier specific access code).  Resale telephone line by subscribers was legal resulting more efficient allong distance carrier for each call by distance carrier for ea						
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- disputes over entry are law. Tariffs were gradually adjusted toward the anti trust commissio ns, with appeal to the Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  - disputes over entry are gradually adjusted toward decreasing cross-subsidies. commissio ns, with appeal to the Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  - Telmex  - Commission Federal de Telecommunication 1938 is the basic legal instrument.  - Telmex  - Communication 1938 is the basic legal instrument.  - Communication 1938 is the basic legal instrument.  - Contraction to law. Tariffs were gradually adjusted toward dialing a carrier specific access code).  - Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  - Telmex  - Telmex  - Telmex  - Telmex  - Telmex  - Telmex  - Telmex was privatized in 1990 with the capital asset pricing model. 6)  - Setting tariff framework for a team of 5 years.  - Share of private sector private sector private sector company.  - Telmex  - Telmex  - Telmex  - Telmex was privatized in 1990 with the service controlling consortium was led by				1 19.	ENTEL is the	2.2
over entry are gradually adjusted toward the anti trust commission s, with appeal to the Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal tions (Cofetel)  Law of General Means of Communication 1938 is the basic legal tions (Cofetel)  Law of General Means of Communication 1938 is the basic legal instrument.  Iaw. Tariffs were gradually adjusted toward dialing a carrier specific access code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Iaw. Tariffs were gradually adjusted toward decreasing cross-subscific access code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Telmex  Telmex ariffs were gradually adjusted toward international long distance service provider.  Setting tariff framework for a team of 5 years.  Share of operators have been granted duplicated parts of CTC's service area.  Telmex:  Telmex are provider.  Setting tariff framework for a team of 5 years.  Company.  Telmet operators have been granted duplicated parts of CTC's service area.  Telmex:  Telmex are provider.  Setting tariff framework for a team of 5 years.  Toperators have been granted duplicated parts of CTC's service area.  Telmex:  Telmex are provider.  Setting tariff framework for a team of 5 years.  Telme operators have been granted duplicated parts of CTC's service area.  Telmex are provider.  Setting tariff framework for a team of 5 years.  Telmes operators have been granted duplicated parts of CTC's service area.		- disputes	The state of the s	100, 100 0.00		firm using the
are resolved by the anti trust commissio ns, with appeal to the court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Mexico  Telmex   Telecommunication the anti trust commission ns, with appeal to the commission federal de Telecommunication the subject to binding arbitration.  Mexico  Telmex  Telmex  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Telecommunication the controlling arbitration.  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Telecommunication the adjusted toward decreasing cross-subscific access code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Telmex  Telmex appeal to Law of General Means of Communication 1938 is the basic legal instrument.  Telmex appeal to Law 1987 includes procedures for setting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex appeal to Law 1987 includes procedures for setting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex appeal to Law 1987 includes procedures for setting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex appeal to Law 1987 includes procedure for a team of 5 years.  Share of private sector - 100% available lines, reflected the real scarcity of service.  Telmex are intermeted tolong distance service provider.  Telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex are intermeted tolong distance state-owned tolong distance service provider.  Telephone line by subscribers was legal resulting more efficient			2 5 V	L 25 7 0 0	domestic and	
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the anti trust commissio ns, with appeal to the Supreme Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telecommunication the procedures for setting monopoly tariffs  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Law of General Means of Communication 1938 is the basic legal instrument.  Code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Communication 1938 is the basic legal instrument.  Code).  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex:  Telmex was privatized in 1990 with the controlling regulated firm regulated firm was led by	1				long distance	model <sup>46</sup> )
trust commissio ns, with appeal to the Supreme Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telecommunication  Law of General Means of Communication  Communication  Law of General Means of Communication 1938 is the basic legal instrument.  Setting tariff framework for a team of 5 years.  Resale telephone line by subscribers was legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Telmex  Telmex:  Telmex:  Telmex:  Telmex:  Telmex:  Telmex was privatized in provider.  Setting tariff framework for a team of 5 years.  Share of private sector - 100%  CTC's service area.  Information provided by regulated firm telephone line by subscribers was legal company.  Share of operators have been granted duplicated parts of CTC's service area.  Telmex:  Telmex was privatized in provided by regulated firm telephone line by subscribers was legal company.  Share of company.  Telmex sector - 100%  Telmex:  Telmex was privatized in provided by regulated firm telephone line by subscribers was legal company.  Share of company.  Telmex sector - 100%  Telmex:  Telmex was privatized in provided by regulated firm controlling consortium was led by	i	W 109 D C 10 W				
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ns, with appeal to the appeal to the Supreme Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Telecommunication  Law 1987 includes procedures for setting monopoly tariffs  was legal company.  resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Telmex:  Telmex:  Telmex:  Telmex:  Telmex:  Telmex:  Telmex:  Telmex was privatized in 1990 with the controlling consortium was led by  Tariffs had been adjusted		commissio	50 S 50 =	Resale		framework
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the Supreme Court.  Supreme Court.  Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Mexico  Telecommunication (Cofetel)  Mexico  Telecommunication (Cofetel)  Mass legal resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex  Telmex:  Telmex:  Telmex:  Telmex:  Telmex:  Telmex was privatized in provided by regulated firm regulated firm are controlling consortium was led by been adjusted			Law 1987 includes	by subscribers	state-owned	5 years.
Supreme Court.  Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal Telecommunica tions (Cofetel)  Monopoly tariffs  resulting more efficient allocation of available lines, reflected the real scarcity of service.  Telmex: - monopoly basic network  Telmex was - monopoly basic network  Telmex was privatized in provided by regulated firm  Telmex: - monopoly basic network  resulting more efficient allocation of available lines, reflected the duplicated regulatory reform - 1987  Telmex was privatized in provided by regulated firm  tariffs had been adjusted	1		procedures for setting	was legal	company.	
Court.  - Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Commission Federal de Telecommunica tions (Cofetel)  Court.  efficient allocation of available lines, reflected the real scarcity of service.  Telmex: - monopoly basic - monopoly basic service  Telmex: - monopoly basic service  Telmex: - monopoly basic service subject to binding arbitration.  Telmex: - monopoly basic service service regulatory reform - 1987  Telmex: - monopoly basic service controlling consortium was led by been adjusted	1	Supreme				Share of
- Disputes over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 Federal de Telecommunica tions (Cofetel)  Amount of available lines, reflected the real scarcity of service.  Telmex: - monopoly basic service  Telmex: - monopoly basic service service  Telmex: - monopoly basic service service service area.  Telmex was privatized in 1990 with the controlling consortium was led by been adjusted	1			2000 1	operators	private sector
over interconnec tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 Federal de Telecommunica tions (Cofetel)  Frederal de instrument.  Mexico  Telmex  Law of General Means of Communication 1938 is the basic legal instrument.  Telmex:  Telmex  Telmex was privatized in provided by regulated firm tariffs had been adjusted	1				have been	- 100%
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tion are subject to binding arbitration.  Mexico  Telmex  Law of General Means of Commission Federal de Telecommunication Telecommunication 1938 is the basic legal instrument.  Service.  Telmex: - monopoly basic privatized in provided by regulated firm controlling consortium tariffs had been adjusted						
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binding arbitration.  Mexico  Telmex  Law of General Means of Communication 1938 Federal de Telecommunica tions (Cofetel)  Telmex:  Telmex: Telmex was privatized in provided by basic service controlling network consortium was led by been adjusted		tion are		service.	CTC's service	1
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Commission Federal de is the basic legal instrument.  Communication 1938 basic 1990 with the controlling controlling tariffs had tariffs had been adjusted	Mexico	Telmex		I to bloch company	COLD BY COMMONTONIA COLD DOOR	The state of the s
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Telecommunica instrument. network consortium tariffs had tions (Cofetel) was led by been adjusted				, a modelication is	A CONTRACTOR INTO THE PROPERTY OF THE PROPERTY	regulated firm
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			instrument.	network		
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Revised regulatory   - set   Grupo Carso,   to reflect the			Revised regulatory	- set	Grupo Carso,	to reflect the

<sup>46</sup> See Galal & Nauriyal (1995) p.13, Box 1 for more detail.

	- independent	framework in three	telephone	Douthwestern	cost of
	regulator	direction:	tariffs	Bell and	providing
	regulator	1. privatized the	subject to	France	each service
	- this institution	ministry of	price-cap	Telecom	especially
	1			relecom	reduce the
	is a competitive	communications	regulation	Talmou is the	international
	authority.	which previously	until 1996.	Telmex is the	AND THE STREET
		is a regulatory		merging of	long distance
	Secretaria	and a service	- has also	two	prices which
	(ministry) de	provider	been	competing	is well above
	Cominicaciones		granted a	telephone	international
	y Transpoites	2. Revise Telmex	national	companies.	norms.
	(SCT)	operation	cellular		
	-Ministry is one		concession.		Adopted price
	of a regulatory				cap regulation
	institution	3. Publish the	There are		
		condition for	regional		Tariff review
		competition	duopoly in the		every 4 years
		under the Law of	mobile cellular		after 1998
		General Means.	service whereby		
		- government specify	a Telmex		Share of
	1	the competition	subsidiary		private sector
1		condition in the	competes with a		- 100%
		regulation of the Law	new entrant in a		
		of General Means	region.		regulatory
					reform - 1990
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New	TCNZ	Commerce Act 1986	Competition	Andreas and the second	
New Zealand	TCNZ	(antitrust Law)	permitted in all	generally	provided by
100000000 700	The Ministry of			generally poor state	
100000000 700			permitted in all	generally	provided by
140000000000000000000000000000000000000	The Ministry of	(antitrust Law)	permitted in all services provision. No market	generally poor state	provided by
140000000000000000000000000000000000000	The Ministry of Commerce	(antitrust Law)  Fair Trading Act	permitted in all services provision. No	generally poor state performance in telecommunic	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers	(antitrust Law)  Fair Trading Act 1986	permitted in all services provision. No market	generally poor state performance in	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading	permitted in all services provision. No market restrictions.	generally poor state performance in telecommunic	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and	(antitrust Law)  Fair Trading Act 1986 - govern competitive and	permitted in all services provision. No market restrictions.  TCNZ published the	generally poor state performance in telecommunic ation diverse	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading	permitted in all services provision. No market restrictions.  TCNZ published the quality of	generally poor state performance in telecommunic ation diverse services  TCNZ was	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in	permitted in all services provision. No market restrictions.  TCNZ published the	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati	permitted in all services provision. No market restrictions.  TCNZ published the quality of	generally poor state performance in telecommunic ation diverse services  TCNZ was	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution	(antitrust Law)  Fair Trading Act 1986  - govern competitive and fair trading behavior in telecommunicati on services	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution	(antitrust Law)  Fair Trading Act 1986  - govern competitive and fair trading behavior in telecommunicati on services	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance)	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and	provided by
Transport Trans	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989 - cover frequency	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways	provided by
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989 - cover frequency and use  Telecommunication	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth New Zealand	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New	provided by
Transport Trans	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989 - cover frequency and use	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell	provided by
Transport Trans	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory monopoly.	(antitrust Law)  Fair Trading Act 1986 - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989 - cover frequency and use  Telecommunication	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth New Zealand	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell Atlantic and	provided by regulated firm
140000000000000000000000000000000000000	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory monopoly.  Commerce	(antitrust Law)  Fair Trading Act 1986  - govern     competitive and     fair trading     behavior in     telecommunicati     on services  Radiocommunication Act 1989  - cover frequency     and use  Telecommunication Act 1987	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth New Zealand	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell	provided by regulated firm
100000000 700	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory monopoly.  Commerce Commission - this institution	(antitrust Law)  Fair Trading Act 1986  - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989  - cover frequency and use  Telecommunication Act 1987  - liberalize CPE &	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth New Zealand (mobile)	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell Atlantic and	provided by regulated firm
100000000 700	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory monopoly.  Commerce Commission -this institution is a competitive	(antitrust Law)  Fair Trading Act 1986  - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989  - cover frequency and use  Telecommunication Act 1987  - liberalize CPE &	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth New Zealand (mobile)  Clear emerged	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell Atlantic and Ameritech for	provided by regulated firm
	The Ministry of Commerce - administers the relevant laws and regulations - Ministry is one of a regulatory institution  Prior to April 1 1987, Post Office is a statutory monopoly.  Commerce Commission - this institution	(antitrust Law)  Fair Trading Act 1986  - govern competitive and fair trading behavior in telecommunicati on services  Radiocommunication Act 1989  - cover frequency and use  Telecommunication Act 1987  - liberalize CPE & VAS	permitted in all services provision. No market restrictions.  TCNZ published the quality of service indicator.  Two competitors: -Clear (long distance) -BellSouth New Zealand (mobile)  Clear emerged as a leading	generally poor state performance in telecommunic ation diverse services  TCNZ was sold in 12 September 1990 to a consortium of Fay Richwhite and Freightways of New Zealand, Bell Atlantic and Ameritech for US\$2.4	provided by regulated firm

<sup>&</sup>lt;sup>47</sup> TCNZ needs to disclose relevant information (prices, term and conditions of certain specific services) and also publish financial accounts with the purpose to provide actual competitors information in a competitive market. Moreover, operator who provide international service in New Zealand are required to uniform their accounting and to ensure that the overseas operator with monopoly privileges in their own domestic countries do not against another to New Zealand carrier and customers.

		(effective April 1,	services.	that the	1
		1991)	services.	American	
		- removed the		Partners	
		TCNZ monopoly		reduce their	
		status for the		combined	
		provision of		share of	
1		public switched		TCNZ to	
1		network services		49.9% in 3	
				years.	
1		Telecommunications		)	
		Amendment Act 1990		The	
		<ul> <li>liberalized the</li> </ul>		government	
	2	provision of		retain a	
	·	telecommunicati		golden share	
		ons services and		(kiwi)	
		facilitate		(*	,
		competition.		On 1 April	
1		umanuar die 🌉 und teinbedde.		1993, TCNZ	,
1		Telecommunication		restructured	,
1	r	(international		itself, with its	
		services) Regulations		operating	,
1		1989		subsidiary	
		100 to 000/1001		becoming	
		Telecommunications		Telecom New	
		(Disclosure)		Zealand	
		Regulation 199047		Limited	
		Section Section 2011		Annual Control of the	
L <sub>n</sub> v					
United	PTO: British	Telecommunication	1984-91,	publicly	Since 1984-
United Kingdom	PTO: British Telecom	Telecommunication Act 1981	duopoly in	publicly owned until	Since 1984- present, main
110000000000000000000000000000000000000	Telecom	Act 1981 (split			
110000000000000000000000000000000000000	Telecom  Regulator:	Act 1981 (split telecommunication	duopoly in fixed-link services.	owned until	present, main regulatory issues
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office	Act 1981 (split telecommunication for post office and	duopoly in fixed-link services. Subsequently	owned until 1980, then liberalize telecommunic	present, main regulatory issues including
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of	Act 1981 (split telecommunication for post office and allow government to	duopoly in fixed-link services. Subsequently opened to	owned until 1980, then liberalize telecommunic ations market	present, main regulatory issues including RPI-X with a
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica	Act 1981 (split telecommunication for post office and allow government to establish network	duopoly in fixed-link services. Subsequently opened to competition in	owned until 1980, then liberalize telecommunic	present, main regulatory issues including RPI-X with a specific X
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication)	Act 1981 (split telecommunication for post office and allow government to	duopoly in fixed-link services. Subsequently opened to competition in all services	owned until 1980, then liberalize telecommunic ations market to private sector	present, main regulatory issues including RPI-X with a specific X written into
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion) - an indepen-	Act 1981 (split telecommunication for post office and allow government to establish network competition)	duopoly in fixed-link services. Subsequently opened to competition in all services except	owned until 1980, then liberalize telecommunic ations market to private	present, main regulatory issues including RPI-X with a specific X written into license.
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion) - an independent non	Act 1981 (split telecommunication for post office and allow government to establish network	duopoly in fixed-link services. Subsequently opened to competition in all services except international	owned until 1980, then liberalize telecommunic ations market to private sector competitors	present, main regulatory issues including RPI-X with a specific X written into
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion) - an independent non ministerial	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984	duopoly in fixed-link services. Subsequently opened to competition in all services except	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization	present, main regulatory issues including RPI-X with a specific X written into license. The price control
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication) - an independent non ministerial regulatory	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.	owned until 1980, then liberalize telecommunic ations market to private sector competitors	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion) - an independent non ministerial regulatory body and	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication) - an independent non ministerial regulatory body and establish in	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion) - an independent non ministerial regulatory body and	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT)	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984. 1991-97 is a transition	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication) - an independent non ministerial regulatory body and establish in 1984	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984. 1991-97 is a transition period	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion)  - an independent non ministerial regulatory body and establish in 1984  - In 1997,	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT)	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication) - an independent non ministerial regulatory body and establish in 1984 - In 1997, OFTEL	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984. 1991-97 is a transition period	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication)  - an independent non ministerial regulatory body and establish in 1984  - In 1997, OFTEL was	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication)  - an independent non ministerial regulatory body and establish in 1984  - In 1997, OFTEL was abolished	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention - review	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication)  - an independent non ministerial regulatory body and establish in 1984  - In 1997, OFTEL was abolished due to	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention  - review duopoly	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through
110000000000000000000000000000000000000	Regulator: OFTEL (Office of Telecommunication) - an independent non ministerial regulatory body and establish in 1984 - In 1997, OFTEL was abolished due to normalizati	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992 - Director general is	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent operator (7	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention - review duopoly policy license	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through unbundling
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunication)  - an independent non ministerial regulatory body and establish in 1984  - In 1997, OFTEL was abolished due to	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992 - Director general is given explicit powers	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent operator (7 years	owned until 1980, then liberalize telecommunic ations market to private sector competitors  privatization BT in 1984.  1991-97 is a transition period - regulatory intervention  - review duopoly policy license entrant in	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through
110000000000000000000000000000000000000	Telecom  Regulator: OFTEL (Office of Telecommunica tion)  - an independent non ministerial regulatory body and establish in 1984  - In 1997, OFTEL was abolished due to normalizati on.	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992 - Director general is given explicit powers to set standards of	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent operator (7 years undisturbed by	owned until 1980, then liberalize telecommunic ations market to private sector competitors  privatization BT in 1984.  1991-97 is a transition period - regulatory intervention  - review duopoly policy license entrant in local and long	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through unbundling and resale.
110000000000000000000000000000000000000	Regulator: OFTEL (Office of Telecommunica tion) - an independent non ministerial regulatory body and establish in 1984 - In 1997, OFTEL was abolished due to normalizati on.	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992 - Director general is given explicit powers to set standards of service for BT and to	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent operator (7 years undisturbed by further entry).	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention  - review duopoly policy license entrant in local and long distance	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through unbundling and resale.
110000000000000000000000000000000000000	Regulator: OFTEL (Office of Telecommunica tion) - an independent non ministerial regulatory body and establish in 1984 - In 1997, OFTEL was abolished due to normalizati on DGT (Director General of	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992 - Director general is given explicit powers to set standards of service for BT and to set compensation if	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent operator (7 years undisturbed by further entry). In return,	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention  - review duopoly policy license entrant in local and long distance markets on	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through unbundling and resale.  Interconnection charges:
110000000000000000000000000000000000000	Regulator: OFTEL (Office of Telecommunica tion) - an independent non ministerial regulatory body and establish in 1984 - In 1997, OFTEL was abolished due to normalizati on.	Act 1981 (split telecommunication for post office and allow government to establish network competition)  Telecommunication Act 1984 - led to privatization of British Telecom (BT) - setting up OFTEL  The Competition and Service (Utilities) Act 1992 - Director general is given explicit powers to set standards of service for BT and to	duopoly in fixed-link services. Subsequently opened to competition in all services except international network.  International calls were incorporated in 1991.  Mercury is the single entrant to compete with incumbent operator (7 years undisturbed by further entry).	owned until 1980, then liberalize telecommunic ations market to private sector competitors privatization BT in 1984.  1991-97 is a transition period - regulatory intervention  - review duopoly policy license entrant in local and long distance	present, main regulatory issues including RPI-X with a specific X written into license. The price control regulation become tighter over time  OFTEL does not want to promote local competition through unbundling and resale.

	DTI		rigidity.	0	cost
	DTI (Department of Trade and Industry) responsible for implementing the regulatory regime prescribed in 1984 Act.  DTI responsible for enforcing licensing (price control) regulation of the radio spectrum.  - OFTEL responsible for monitoring and enforcing license conditions, investigate complaints and keeping the sector under review generally.		Mercury: -2 <sup>nd</sup> network operator - providing local fibre- optic network as well as long distance & internation al network Duopoly policy expired on 1991 - Low penetration to local market and low profit. (Customers prefer BT for originating and terminating calls)  Liberalization of CPE, mobile, VAS, data and resale market between 1985-	- Government sold 51% of shares to public by way of issuing share. The government sold further 27% of BT's shares in 1991 and remaining 22% in 1993 to the public Government retained a golden share to entitles it to attend and speak at shareholders meeting and appoint two directors.	- reflect loss in revenue by BT when loss a customer to Mercury.  Access charge = long run incremental cost + common cost
United State	PTO: AT&T	Communications Act 1934	Regulator is an independent	Domestic long distance	
SENTENCE HE	Regulator: Federal Communication s Commission	Communication Act	competition is allowed for all	and international voice service are provided	subject to price cap regulation.
	(FCC) -an independent regulator		services with a few restrictions	by AT&T,	Interconnection agreement between
	- competition authority		There is no federal segmentation of markets or	1984, AT&T broken up to avoid	-
	- regulates	1	markets of	avoid	Symmetrica

<sup>&</sup>lt;sup>48</sup> The seven divested BOCs or Baby Bells are NYNEX, Bell Atlantic, Bell South, Southwestern Bell Corporation, Pacific Telesis, U.S. West and Ameritech. They were allowed to market, but restricted to local telephone service.

	interstate and		carriers	dominant	access
	international		restrictions	firm in the	charges with
	communication		except for	sector.	other
	as well as radio		Regional Bell	Scotor.	telecommunic
	frequency		Operating		ation carriers,
	spectrum		Companies		with the
	spectrum		(RBOCS) <sup>48</sup>		purpose to
	- state public		(ICDOCS)		eliminate
	utilities		3 patterns to		incumbent's
	commission		enter local call		bargaining
į (	(PUC) regulate		market:		power.
	intrastate		facilities based		power.
	communication		entry		FCC has
	Communication		-involve social		designed an
	'		cost		incentive
Í			0000		scheme for
			resale		regulated
			- buy local		firms a choice
			services at		between
			discount price		remain under
			from ILECs and		cost plus
			resell serviced		regime or
			to its own		switching to
			customers		price cap for
			(as a		local
			compensation		exchange
			to the ILEC		company.
ļ			opportunity		company.
			cost)		
			· · ·		
			unbundling		
			(combination of		
1			facilities based		
			and resale entries)		
1			- entrant lease	•	
1			ILEC's wire,		
1			but it can use its		
			own switches.	1	
			ILEC still	1	
			control over		
			maintaining the		
			unbundled		
			elements		
Carrage	nted from Poyland and	135-1-4: (2000) - 5		1 1 11 0 0 11	1 1000 TT 1

Source: adopted from Boylaud and Nicoletti (2000) p.50-52, OECD Communications Outlook 1999, Hudson (1997), Wellenius and Stern (1989)

# Appendix 7: Malaysia Regulatory Institution, Mechanisms and other variables of Telecommunications sector.

																										agoney	aumorry/	ruguant)	Demilatory	Variable
							Harakin , and	O. compani									and the second		şe ayan		(Telecommunications Act 1950,S3(1)	having power to grant licences	telecommunications equipment besides	regulation to control any	Minister has the power to make	power) to to general	solely for regulatory functions	Telecommunications) was responsible	TM (Denartment of	Pre-privatization (1957-1987)
shares (25%) and	1990 by sales of new	<ul> <li>partially privatized in</li> </ul>	from 1987 onwards	years licensed issue	<ul> <li>It was granted 20</li> </ul>	as well.	customer orientation	and infrastructure and	including marketing	focuses commercially	<ul> <li>is a main operator,</li> </ul>	STM		to STM.	had been transferred	industry, instead it	telecommunications	the	operating function of	<ul> <li>no longer undertaken</li> </ul>	Telekom Malaysia)	STM (Svankat	granted by METP to	enforcing licences	• monitoring and	the industry	regulatory body of	the government	JTM	Corporatization (1987-1990)
									aspect. [5/(1)]	regulation for wider	power to make	Posts (METP) has the	Telecommunications and	Ministry of Energy,	NV 1000 100		organization.	telecommunications	international	Malaysia in	and represent	quality of services	interest, encourage	protect consumer	promote R&D,	radio spectrum and	standards, regulate	established	MIL	Post privatization Era I (1991-1997)
										[316(1)]	as the procedures of appear unbursa	Commission for several aspects such	under the recommendation of the	Make regulation to be published	[3/(1) & (2)].	Commission's omnes under the Act	and the performance of the	exercise of the Commission's power	the object form time to time of the	consistent to the Commission with	<ul> <li>may issue directions which is</li> </ul>	Multimedia (MECM)	Ministry of Energy, Communications and		with the determination [S10(4)]	under the Act 1998, which is consistent	regulator. It exercise its power granted	Multimedia Commission) MCMC is the	Malaysian Communications and	Post privatization Era II (1998-present)

# PERPUSTAKAAN UNIVERSITI MALAYA

Pension Act 1980 and Pension	Telecommunications (Amendments) Act 1985  - reformulated JTM as the government regulatory authority Allow Minister to appoint Director General of telecommunications for the purpose of performing the duties assigned to him under the Act. [S3(B)]	Telecommunications (Amendments) Act 1984  - Minister has the power to make regulation for fee, rent or royalty payable on the license.	Telecommunications Services (successor company) Act 1985 - Allow the transfer of telecommunications operating assets and liabilities of telecommunications services to STM besides the provision relating to staff from JTM to STM		The legal  status of Telecommunications Act 1950 regulation: grants the government to provide all Rules, Laws domestic and international	
	rts) Act rernment irector rns for the duties ct.	ns) Act ake yalty	uccessor ng assets nications om JTM	either by do so. atory		listed on KLSE on November 7, 1990.
				(Amendment) Act 1993	Telecommunications (Amendment) Act 1991 Telecommunications	
				<ul> <li>based on the principles of transparency and less regulation and self-regulation.</li> <li>address the industry convergence legislation</li> </ul>	Communications and Multimedia Act 1998 - repeals the Telecommunications Act 1950 and the Broadcasting Act 1988	

For intentional damage any telecommunications plant, a fine of not
Penalty for any breach of licence shall be liable for a bigger amount of fine (not exceeding one hundred thousand ringgit) [S.21] Act 1991.
USP burden was borne solely by TMB (Telekom Malaysia Berhad)
Price cap with no regular fixed tariff review. After a long regulatory lag of 11 years, another tariff review was done in 1996.

Market structure		No experience operating in a priv sector environment and no system place for private sector operation	Competition Monopoly until 1987 and market liberalization No experience dealin	
		No experience operating in a private sector environment and no system in place for private sector operation.	Monopoly until 1987  No experience dealing with competition	
		Three major players dominate in payphone market	Beginning of competition: Payphone: 1988 Cellular: 1989	
Analogue mobile telephone services is quite laid out nationally. ATUR 450 and ART 900 have approached maturity in service coverage exceeded 80% coverage.	Competition is emerging in facilities-based services, cellular and paging services.  The degree of competition differs with segments of the market.	based on segmentation: Local telephony: May 1994  The government licensed four companies (Celcom, Maxis, DiGi Telecom and time Telecom) to compete with incumbent TMB in the local telephony market.	Acceleration of competition since 1994.	The second secon
There are 5 private companies, namely Technology Resources Industries (TRI), Binariang Sdn.Bhd (Maxis), DiGi Telecommu-nications Sdn.Bhd, Time Wireless Sdn.Bhd and Mobikom Sdn.Bhd.  All of them are given international gateway licenses, fixed-line and mobile licenses. The incumbent has dominant	, and the second	Equal access in 1999  Beginning of competition:  Domestic long-distance telephony:  January 1999  International telephony: January 1999.	Malaysia has deregulated all aspect of services very competitively such as network for basic services, terminal	

				I icence
upped foreign equity in local telecommunications companies from 300% to 49%				
At the end of February 1998, government				
restrictions except that foreign ownership in TMB is limited to 33%.	***************************************			
There is no clearly defined foreign	otner.			Market entry
	interconnectivity to each			
	services provide	200 A. T.		
services are set closer to long run	telecommunications	<del></del>		
arrangeh whereas wices for mobile	of fixed and mobile	-		
For fixe line services, interconnection	Policy 1992 was signed			
	Telecommunications			
the bottleneck facilities.	National			
services subject to interconnection uses	was signed in 1995.			TOIL
	International Agreement			Interconnec-
Paging services has been faded				
prepaid mobile services.				
Meanwhile, DiGi has its niche market in	launched in late 1995			
phone market i.e. 30% and over 30%	geostationary satellite,			***************************************
equal share control over the mobile	to provide Malaysia's		the second	
Both Maxis and Celcom have almost	Maxis also has licenses			
	coverage (JTM, 1997).	-		
The cellular market is oligopolistic.	has achieving 50%		· · · · · · · · · · · · · · · · · · ·	<i>y</i> ,
nber-optic networks.	centres. Its service	•	10.0	***************************************
challenged by 5 players which offering	concentrated in town		-11	
over the fixed exchange network. It is	GSM 900 is			3

The decision of Appeal tribunal is decided on a majority vote of the members (Chairman and at least two others members) [S.23]	
Appeal Tribunal may review any matter relating to the decision of the Commission except the determination by the Commission (S.18)	man and a second se
Minister may establish an Appeal tribunal to assist the performance of the Commission's function for the public interest.	Appeai Tribunal
Minister may declare cancellation of an individual licence under S.37 circumstances. The effect is licensee cease to provide the service granted immediately. For those who commit this offence is liable to a fine not exceeding five hundred ringgit or imprisonment for not exceeding five years or both, [S. 41(4)]	
apply for an individual licence. For those who intend to operate under a class licence may register with the Commission by submitting a registration notice. On the contrary, Minister may declare cancellation of registration according to the recommendation of the Commission [S.47]	

### ppendix 8: Comparison of Price Cap and Rate-Of Return Regulation.

### **IIGH POWER INCENTIVE SCHEME**

RICE CAPs Regulation (FIXED PRICE)

### \dvantages:

- The government bears no risk in price that it will pay.
- The firm has incentive to minimize total cost.
- i. It reduces both the workload and political burdens on regulators. Once the detail of the caps (what services are included in the basket, how large is the X factor should be, how frequent the review should be, whether different caps should be given to different basket and etc) are solved, the tariff issues has been taken out of political arena, at least until the next review period.

### LOW POWER INCENTIVE SCHEME

Rate-of- Return Regulation (COST-PLUS)

### Disadvantages:

- The government is uncertain about the price in line with cost. The firm has no incentive to undertake any cost-reducing measures.
- 2. The firm may inflate cost and involve in cross-subsidization by shifting cost from unregulated to regulated services.

### Disadvantages:

- 1. Costly to supply quality
- because provision of quality would be borne entirely by the firm. Thus, firm ignores quality matters if it is not specified in the regulatory contract
- 2. Regulatory commitment & regulatory lag:
- the length of regulatory contract: may incur before the expiration of current regulatory contract. Regulator has power to fixe the regulated firm's price for predetermined period and then subsequent revising this price. At each review, regulator must ensure that fixed price is high enough in the regulatory process until the next review.
- Renegotiation are proposed when the firm finds that the initial contract is unprofitable and they face 'soft budget constraint'
- However, renegotiation may further worsen ratchet effect i.e. regulatory body may expects the firm to perform better at the next review when the regulated firm manage to reduce its cost currently.

### Advantages:

- 1. cheap to supply quality
- this adoption is suitable if regulator is unable to monitor quality standards.
- 2. Regulatory commitment & regulatory lag:
- The firm's cost and profitability are examined by the regulator each time the firm files a new set of prices (continual regulatory lag).
- If the firm is risk averse, then the insurance properties of short lags can track cost better. Therefore better insurance against cost movements is obtained under rate-ofreturn regulation.

<sup>&</sup>lt;sup>49</sup> If the firm's costs are not observable, then the firm has an incentive to artificially increase its costs to a review to obtain greater advantages.

- In a nutshell, the contract renegotiation will decrease the firm's incentive in its costreducing effort and lead to inefficiency.
- 3. regulatory capturing:
- high power incentive scheme is associated with high rents. Intermediaries may captured by interest group because they are uncertain about the policy ranking that favor interest group. They are free-riders and have no incentive to get information about raking policy. Thus, need informational intermediaries as delegate supervisor to share information and to suggest policy that reduce the likelihood of capture.
- Any government decisions may affect consumer welfare. If government knows that the firm has a low cost, regulator would abolish the potential rent. However, there's always asymmetry information occurrence whereby consumers (taxpayers) have to pay higher tax for services when a firm gains from rent. Government may pays more than the cost for the project.
- 4. The degree of cost passthrough:
- A higher degree of risk aversion for a firm implied a greater degree of cost passthrough than should be allowed.
- Cost passthrough providing incentives for cost reduction.

- 3. Regulatory capturing:
- less sensitive to regulatory capturing, in other words, regulatory decisions have lower impact on the firm's welfare as the use of regulator's private information is the least.
- advisable to use lower power of incentives schemes when regulatory capture is serious.

- 4. The degree of cost passthrough:
- The firm chooses after observing the cost function to get the optimal cost passthrough. Therefore, the firm faces no risk and thus the degree of risk aversion was irrelevant.